

or more pieces. Each of the layers typically has certain functions. For example, the laminate layer usually has good friction and abrasion properties and the board layer commonly is capable of enduring impact stress. Also, the supporting structure layer according to the present invention has a high specific stiffness and light-weighted structure.

A special advantage of the structure according to the present invention is that the thickness of the components of the element can be adjusted in each part of the lane according to the lane requirements. This is at least in part because stress in each part of the lane can be at least slightly different.

The construction element of the bowling lane must fulfill strict straightness requirements laid for the bowling lanes as exemplified by the attached page of the regulations of the American Bowling Congress. These requirements address, among other things, the need for similar conditions to prevail for each player. If such conditions cannot be guaranteed, it is not possible to hold for example bowling competitions. The bowling lane of the invention is a lane having a very stable construction.

Other new and desirable features of the construction of the present invention include reduction of weight as compared to known bowling lane constructions. Also, the present invention makes it possible to erect a lane for temporary use. Furthermore, the present invention makes it possible to alter the thickness of different layers of the construction element. In view of the above, the invention represents a completely new way of thinking in the field of bowling lanes.

The Examiner rejected claims 1-10 under 35 U.S.C. § 103(a) as unpatentable over U.S. patent 4,320,898 to Brunst et al. in view of U.S. patent 5,789,060 to Marshall et al.

Brunst et al. does not suggest the present invention since, among other things, Brunst et al. does not suggest a board layer between a laminate layer and a supporting structure layer. The present invention as recited in newly presented independent claim 11 includes a laminate layer, a board layer and a supporting structure layer. On the other hand, Brunst et al. only suggests a composite panel that includes a laminate layer 31 and a core layer 20. The core is formed of wood strips that are attached to each other. Each face of the core is covered with a high pressure laminate. In addition, Brunst et al. does not suggest other characteristic features of the present invention discussed above.

Brunst et al. also does not suggest a cellular core layer. The Examiner cites Marshall et al. as suggesting a honeycomb layer. If the board core suggested by Brunst et al. were replaced with the honeycomb core suggested by Marshall et al., the combined structure would still lack the board layer of the present invention. The board layer in the construction element is an important part because the other layers are less able or incapable of receiving the impacts that are common in bowling lanes.

In the rejection, the Examiner states that it is obvious to replace the core disclosed by Brunst with a honeycomb. However, the rejection does not include any reasoning why it would be obvious to replace the wooden core suggested by Brunst et al. with the honeycomb suggested

by Marshall et al. If it is assumed that the wooden core is replaced by the honeycomb structure, the resulting construction would include uneven laminate faces echoing the surface pattern of the honeycomb layer. As a result, the resulting construction would neither bear stresses caused by falling balls and nor would it fulfil the straightness requirements. This illustrates why the combination is not obvious.

In fact, contrary to the Examiners assertions, Marshall et al. would appear to teach away from the invention. Along these lines, Marshall et al. at col. 2, lines 1-46, points out that that the buckling and warpage effects can occur in connection with honeycomb structures. From the text of Marshall et al., would not lead one skilled in the art to include a honeycomb structure in a bowling alley where high stress levels are encountered. These buckling and warpage effects are highly undesirable features in the construction element for a bowling lane, particularly due to the set strict requirements, such as are set forth in the attached copy of a page from American Bowling Congress (ABC) regulations concerning bowling lanes. In view of the above, one of ordinary skill in the art would not consider utilizing a honeycomb structure in a bowling lane construction.

In view of the above, the references relied upon in the Office Action, whether considered alone or in combination, do not suggest patentable features of the present invention. Therefore, the references relied upon in the Office Action, whether considered alone or in combination, do not make the present invention obvious. Accordingly, Applicants respectfully request withdrawal of the rejection based on the cited references.

In conclusion, Applicants respectfully request favorable reconsideration of this case and early issuance of the Notice of Allowance.

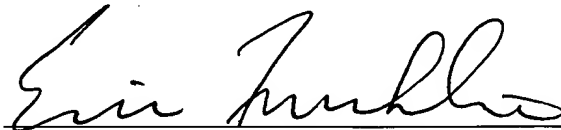
In the event that the Examiner believes that an interview would serve to facilitate the prosecution of this application, Applicants respectfully urge the Examiner to contact the undersigned at the telephone number listed below.

The undersigned authorizes the Commissioner to charge any insufficient fees or any credit overpayment associated with this communication to Deposit Account 19-5127, 19380.0006.

Respectfully submitted,

Date: _____

6-5-02



Eric J. Franklin, Reg. No. 37,134
Attorney for Applicants
Swidler Berlin Shereff Friedman, LLP
3000 K Street, NW, Suite 300
Washington, DC 20007
Telephone: 202-424-7500

Composition:

The lane must be constructed entirely of wood and/or synthetic materials which have been approved by ABC/WIBC.

Length:

1. The overall length of a regulation lane, including the pin deck, has a reference dimension of 62 feet, 10 ³/₁₆ inches, measured from the lane side of the foul line to the rear edge of the pin deck (not including the tail plank).
2. It must be 60 feet, plus/minus ¹/₂ inch, from the lane side of the foul line to the center of the No. 1 pin spot.
3. It must be 34 ³/₁₆ inches, plus/minus ¹/₁₆ inch, from the center of the No. 1 pin spot to the rear edge of the pin deck (not including the tail plank).

Width:

The lane shall be 41 ¹/₂ inches, plus/minus ¹/₂ inch, wide.

Surface:

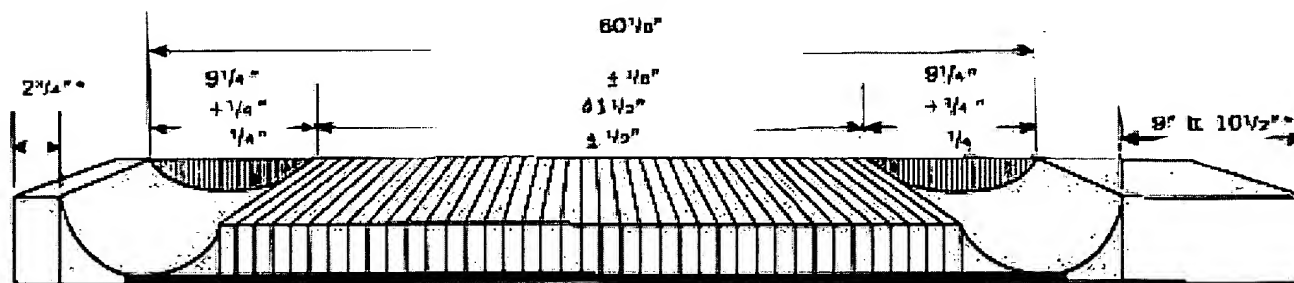
1. The surface must be free of all continuous grooves or ridges.
2. There shall be no depressions or crown in excess of ⁴⁰/₁₀₀₀ inch on the surface of the lane over a 42 inch span.
3. There shall be no crosswise tilt in excess of the ⁴⁰/₁₀₀₀ inch over the width of the lane.
4. The same lane finish coating shall be applied from the edgeboard to edgeboard.
5. The Coefficient of Friction of all lane surfaces shall not exceed .29 when measured with an ABC/WIBC approved device.

All bowling lane finish coatings as well as all synthetic lane surfaces must be submitted to ABC/WIBC for coefficient of friction testing before use in sanctioned competition.

In addition, all lane surface coatings must bear labels stating "This product complies with ABC/WIBC specifications when applied as directed by the manufacturer."

ABC/WIBC Regulation Bowling Lane Dimensions

Typical Cross Section of Bowling Lane Round Gutters from foul line to pin deck area.



*NOTE: THIS PARTICULAR MEASUREMENT IS NOT AN ABC/WIBC SPECIFICATION BUT IS AN ACCEPTED STANDARD FOR INSTALLING BOWLING Lanes.

Lane and Approach Markings or Designs

Markings or designs on the lanes and approaches shall be permitted in accordance with the following specifications:

1. Measured from the foul line, a maximum of seven (7) guides may be embedded in or stamped on the approach at each of the following points: 2-6 inches; 9-10 feet; 11-12 feet, and 14-15 feet. Each series of guides shall be parallel to the foul line and each guide shall be circular in shape, and shall not exceed ³/₄ inch in diameter.
2. At a point 6-8 feet beyond the foul line and parallel thereto, there may be embedded in or stamped on the lane a maximum of ten (10) guides. Each guide shall be uniform, circular in shape, and shall not exceed ³/₄ inch in diameter.
3. At a point 12-16 feet beyond the foul line, there may be embedded in or stamped on the lane a maximum of seven targets. Each of the targets shall be uni-

form and may consist of one or more dowels, darts, diamond, triangles or rectangular designs. The overall surface covered by each target shall not be more than 1 ¹/₄ inches in width and 6 inches in length. Each target must be equidistant from one another and set in a uniform pattern.

4. At a point 33-44 feet beyond the foul line, there may be a maximum of four targets. Each target must be uniform in appearance and shall not be wider than a single board nor longer than 36 inches.
5. Embedded markings or designs shall be of wood, fibre or plastic, and shall be flush and level with the surface of the lanes and approaches.
6. When the markings are stamped on wood lanes, they shall be applied to the bare wood and then covered with lacquer, urethane, or similar liquid transparent material generally used in resurfacing. All such installations in any one center shall be uniform as to design and measurement and at least on natural pairs of lanes.